PELCZARSKI, S.

"Organization of Technical Control in a Foundry." p.299
(PRZEGLAD ODLEWNICTWA Vol. 3, no. 10, Oct. 1953 Krakow, Poland)

SO: Monthly List of East European Accessions, LC, Vol. 3, no. 5, May 1954/Uncl.

PELCZARSKI, S.

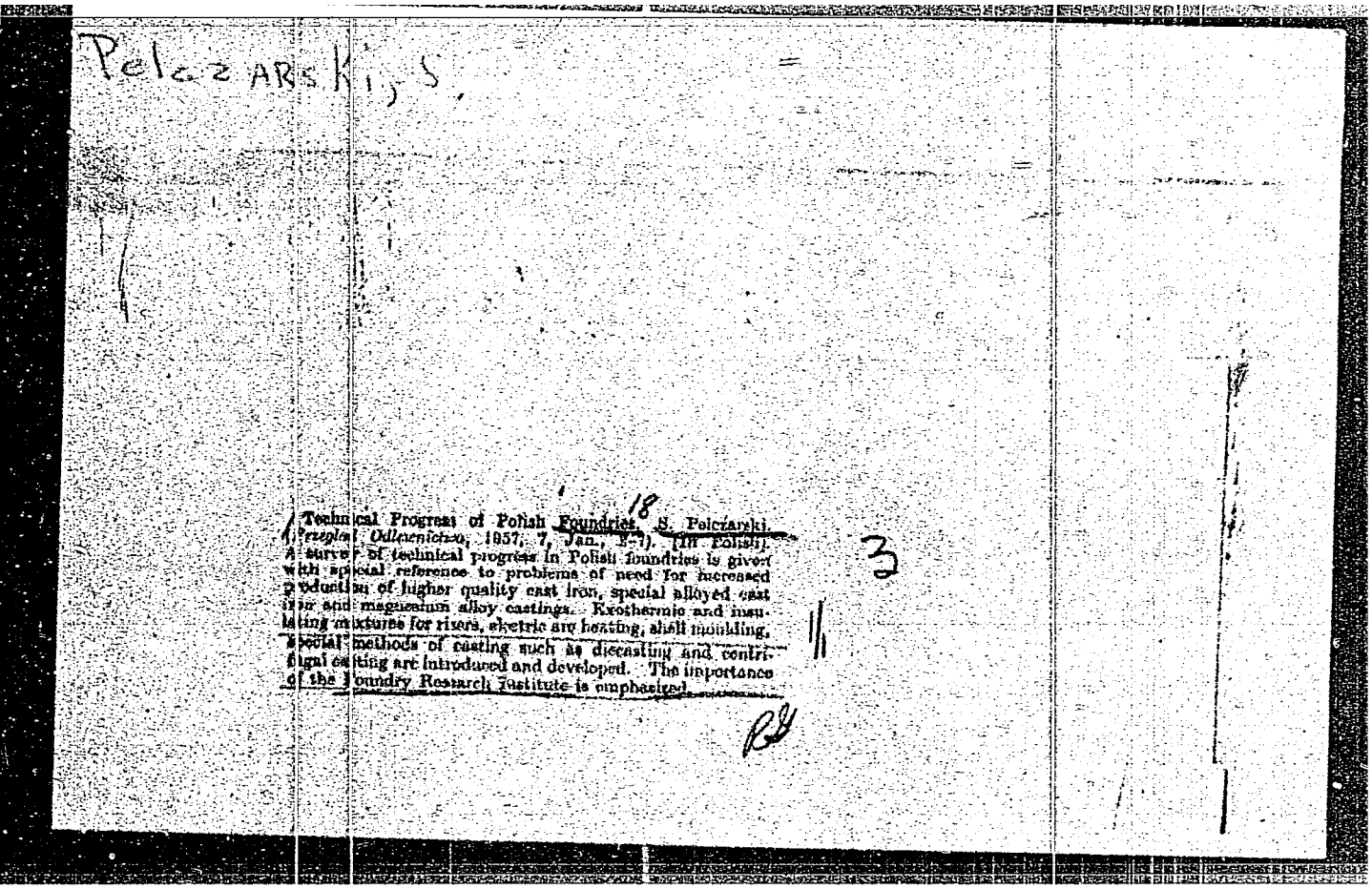
POL.

Organizing Methods of Preventing Rejects in an Iron Foundry. S. Pelczarski. (*Przegląd Odlewnictwa*, 1954, 4, (3), 68–70). [In Polish.] The organization of the control of foundry production and the co-operation between various departments of a foundry necessary to diminish the number of defective castings are discussed.—v. o.

PELCZARSKI, S., HEINAR, T. Poland

New trends in the converter process for the manufacture of steel castings.

SO: Foundry Journal, Poland, #2, Feb 1955, Unclassified.



Pelczarski, S.

Technical Progress of Polish Foundries. S. Pelczarski. *Przegląd Odlewniczy*, 1957, 7, Jan., 2-7). [In Polish].
A survey of technical progress in Polish foundries is given with special reference to problems of need for increased production of higher quality cast iron, special alloyed cast iron and magnesium alloy castings. Exothermic and insulating mixtures for risers, electric arc heating, shell moulding, special methods of casting such as diecasting and centrifugal casting are introduced and developed. The importance of the Foundry Research Institute is emphasized.

PELCZARSKI, Stanislaw

Determination of the dimensions of cupola tapping siphons.
Metal i odlew no.10:7-14 '63.

1. Katedra Maszyn i Urzadzen Odlewniczych, Akademia Gorniczo-Hutnicza, Krakow.

PELCZARSKI, S., doc. mgr. inz. (Krakow, Poland)

Technical progress in the field of founding machinery. Machines for sand preparation. Livar vest 9 no.2 '62.

PELCZARSKI, T.

Public ascension of Sniadecki and Jaskiewicz' balloon. p. 222. (SKRZYDLATA POLSKA, Vol. 10, No. 14, Apr. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

PELCZARSKI, T.

A glider without a tail. p. 251. (SKRZYDLATA POLSKA, Vol. 10, No. 16, Apr. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

PELCZARSKI, T.

A flying wing with automatic propulsion. p. 219. (SKRZYDLATA POLSKA, Vol. 10, No. 14, Apr. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

PELCZEWSKI, Wladyslaw

Determination of transients in the Leonard's system including the saturation of the magnetic circuit of the main generator and exciter. Archiw automat 4 no.3/4:211-252 '59. (EEAI 9:7)

1. Politechnika Lodzka, Katedra Napedow Elektrycznych.
(Automatic control) (Transients (Electricity))
(Dynamos) (Magnetic circuits)

PELCZEWSKI, W.

Polish Technical Abst.
No. 1 1954
Mechanics, Electrotechnics, Power

2
D, Elec

2803 621.395.612:004.11

Pelczewski W. Principles of Amplidyne Operation.

„Zasada działania amplidyny". Przegląd Elektrotechniczny. No 4, 1953, pp. 139—146, 11 figs.

Definition of dynamoelectric amplifiers. Basic definitions. Principles of amplification. The D. C. separately excited generator as the amplifier prototype. Constructional details of amplidynes, and principles on which they operate. Leading characteristics (current between short-circuited brushes, current given up to the external circuit, power at the terminals, losses in armature winding and equivalent current, static amplification factor). Transient courses. Notes on amplidyne adaptability.

4/51-54
3P
18

PELCZEWSKI, W.

"Use of electric machine amplifiers in drive systems." p. 60. (Przeglad Elektrotechniczny, Vol. 30, no. 2, Feb 54, Warszawa)

SO: Monthly List of East European Accessions, Vol 3 No 6 Library of Congress Jun 54 Uncl

PELCH [illegible], [illegible]

E[illegible]u[illegible]valent straight line representation of the no-load characteristic for [illegible]rect-current machines working in aut[illegible]matic contr[illegible] s stems.

[illegible] 13[illegible] ([illegible]) [illegible], [illegible] 1, [illegible]

SO: [illegible]ont[illegible] [illegible] of East European Accessions (EEAI, [illegible]), [illegible] November [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239830008-7"

PELCZEWSKI, W.

2

The principle of the operation of single-stage rototrols. W. Pelczewski.

Przeglad elektrotech., 30, No. 4, 135-41 (1954) In Polish.

A d.c. generator, the exciting winding of which has a resistance of the critical resistance, when a small signal current is made to flow through an additional exciting winding varies considerably its voltage and consequently the output into a resistance connected across the machine terminals. Shunt and series rototrol amplifiers are compared and mention is made of multistage rototrols.

A. Karlsbad.

4121 621.825

Perzewski W., Piątkiewicz A. The Use of Slip Couplings in Crane Drives.

„Zastosowanie sprzęgieł poślizgowych w napędach dźwignic". Archiwum Budowy Maszyn (PAN). No. 1, Warszawa, 1955, PWN, pp. 55—57, 9 figs.

The authors discuss the operating principles of asynchronic slip couplings on the basis of the utilization of the phenomenon of eddy currents and the relations between the slip and the power input and output and between the slip and the efficiency of the coupling. Method of deducing the formula of the couple carried over by the coupling. A survey of typical construction solutions, possibilities of obtaining different curves of the mechanical characteristics of the coupling and the results obtained on a model. To justify the wisdom of using slip couplings with crane drives, the kinematics of the crane mechanism fitted with a slip coupling is considered together with relative advantages. Further, the authors give the principles of controlling a typical drive system with a slip coupling for the hoisting as well as for the travelling mechanism. They then emphasise the technical and economic advantages obtained by the use of the slip couplings, and discuss the possibilities of using slip couplings in braking and the further outlook as regards their application.

PELCZEWSKI, W.

621.313.2R3 : 621.375.8

1559. Application of rotating amplifiers in drive systems. W. Pelczewski. *Przegląd elektrotech.*, 36, No. 2, 49–6 (1959) in Polish.

Principles of operation of amplidyne and rototrol are explained and their relative merits compared. Circuits for their application as main generators, exciters and pilot exciters in Leonard systems of low, medium and large power ratings respectively are discussed. Their use in reversible drive systems, bridge circuits, automatic feed of arc furnace electrodes and in frequency changers using either synchronous or asynchronous generators is reviewed.

J. ŁUKASZEWICZ

PELCZEWSKI W

2

POL.

3284 62.313.1 077 : 621.34

Pelczewski W. The Use of Electric Machine Amplifiers in Drive Systems.

„Zastosowanie wzmacniaczy elektromaszynowych w układach napędowych". Przegląd Elektrotechniczny. No. 2. 1954, pp. 60—65, 9 figs.

Brief characteristics of electric machine amplifiers. Comparison as between automatic drive systems with combined relay and contactor control, and electric machine amplifiers. Instances of electric machine amplifiers employed in drive systems. No undue absolute superiority should be attributed to either amplidyne or rotoirol. Both these alternative forms of amplifiers are, in the Soviet Union, being used according to the type of system and to the conditions under which it is working. The question of preference — as between amplidyne and rotoirol — requires, when designing any particular drive system, a thorough survey of this problem.

(K 3911

PELCZEWSKI, W.

"Principles Of Amplidyne Operation" p. 139. (Przeglad Elektrotechniczny, Vol. 29, no. 4, Apr. 1953, Warszawa)

SO: Monthly List of East European Accessions, Vol. 3, No. 2, Library of Congress, February, 1954, Uncl.

P/0031/64/009/001/0003/0022

ACCESSION NR: AP4039540

AUTHOR: Pelczewski, Wladyslaw (Pelchevski, V.)

TITLE: Method for determining transients in automatically-controlled electric drive system

SOURCE: Archiwum automatyki i telemechaniki, v. 9, no. 1, 1964, 3-22

TOPIC TAGS: Ward-Leonard drive, open loop system, amplidyne, generator amplifier, armature-reaction generator, electric drive system, automatically-controlled electric drive system, transient determination

ABSTRACT: An approximate method for determining transients in automatically-controlled drive systems is given. The method is based on calculation of the system element output signals for short time intervals under the assumption that the input signals during the separate intervals are constant and their values are equal to the values at the initial moment of these intervals. The sequence is as follows: (1) the signal Y (t), directed to the input, is replaced by a staircase transient, wherein the duration of the discrete signal components amounts to Δt, and the height is equal to the average value of the function Y (t) in the given time

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ACCESSION NR: AP4039540

interval Δt; (2) a function representing the response to the stable input signal is determined for all elements of the system; (3) the response X_{wya} of the first member G_a is determined for an input signal, equal to Y_1, after a time $t = \Delta t$, then for the signal Y_2 after a time $t = 2\Delta t$, for a signal Y_3 after a time $t = 3\Delta t$, etc.; (4) the response of the second element X_{wyb} is determined for an input signal equal to X_{wya} after a time $t = 2\Delta t$, $t = 3\Delta t$, etc; (5) the responses of the sequential elements of the system X_{wyc}, X_{wyd} etc. are then determined for the times $t = 3\Delta t$, $t = 4\Delta t$, etc. up to the moment $t = t_1 = k\Delta t$, when the signal $f_{s1}(t_1)$, directed to the adder, appears at the output of the first feedback circuit; (6) the responses of the individual elements of the system are determined for the range from $t = t_1 = k\Delta t$, to $t = t_1 + \Delta t$ with consideration that a signal equal to $X_{wya}(t_1) + f_{s1}(t_1)$ acts on the adder; (7) the output signals of the individual elements are calculated in an analogous manner with consideration to the effect of the first feedback up to that moment when a signal appears at the second feedback's output. The transients for an open loop system with interrupted feedbacks can thus be calculated. The application of the proposed method is shown through the example of calculating the transients in a Ward-Leonard drive with an amplidyne-generator and with negative voltage and positive current feedback. Original article has: 7 figures and 68 equations.

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ACCESSION NR: AP4039540

ASSOCIATION: Politechnika Lodzka Katedra Napedu Elektrycznego (Department of Electric Driving Machinery of the Lodz Polytechnic Institute)

SUBMITTED: 16Sep63 DATE ACQ: 18Jun64 ENCL: 00

SUB CODE: IE, EC NO REF SOV: 001 OTHER: 014

Card 3/3

PELCZEWSKI, Wladyslaw, prof. dr.

Working of the electromagnetic friction couplings during the starting of the drive system. Inst elektrotech prace 10 no.28:1-32 '62.

1. Zaklad Zautomatyzowanych Napedow, Instytut Elektrotechniki, Warszawa.

Bessaga, C.; and Pełczyński, A. On subspaces of a space with an absolute basis. Bull. Acad. Polon. Sci. Sér. Sci. Math. Astr. Phys. 6 (1958), 313–315.

This paper generalizes to a subspace Y of a Banach space X with an absolute basis certain results of R. C. James [Ann. of Math. (2) 52 (1950), 518–527; Proc. Amer. Math. Soc. 6 (1955), 899–902; MR 12, 616; 17, 877]. Five conditions are given which are equivalent to Y containing no subspace isomorphic to l, and three conditions which are equivalent to Y being reflexive. It is shown that Y is weakly complete if and only if it has no subspace isomorphic to c_0. *S. S. Cairns* (Urbana, Ill.)

3

Pełczyński, A. On the approximation of S-spaces by finite dimensional spaces. Bull. Acad. Polon. Sci. Cl. III. 5 (1957), 879–881, LXXV. (Russian summary)

A B_0-space of S-type is a locally convex complete metrizable space X whose topology is defined by an increasing sequence of pseudonorms $\{|x|_n\}$ such that $\{x: |x|_{n+1}\leq 1\}$ is totally bounded in the pseudometric induced by $|\cdot|_n$. Let $\alpha_{ij}(X, t)$ be the maximal number of points in any subset S of $\{x:|x|_{i+j}\leq 1\}$ such that $|x-x'|_i\geq t$ whenever $x, x'\in S$, $x\neq x'$. Theorem: If B_0-spaces of S-type X, Y are isomorphic, then for each pair of sequences of pseudonorms that define the respective topologies, and for every $t>0$, i', j, there exist $\delta>0$, i, j', such that $\alpha_{i'j'}(Y, t)\leq\alpha_{ij}(X, \delta t)$. The space of entire functions, the space of functions holomorphic in the interior of a circle, and the space of infinitely differentiable functions on a closed interval, each with a suitable sequence of pseudonorms, are of S-type. By the theorem, no two of them are isomorphic. *M. Jerison* (Princeton, N.J.).

BESSAGA, C.; PELCZYNSKI, A.

Some remarks on homeomorphism of Banach spaces. Bul Ac Pol mat 8 no.11/12:757-761 '60.

1. Institute of Mathematics, Polish Academy of Sciences. Presented by S. Mazur.

(Spaces, Generalized)

PELCZYNSKI, A.

A proof of Eberlein-Smulian theorem by an application of basic sequences. Bul Ac Pol math 12 no.9:543-548 '64.

1. Institute of Mathematics of the Polish Academy of Sciences, Warsaw. Presented by S. Mazur.

BESSAGA, C.; PEŁCZYŃSKI, A.; ROLEWICZ, S.

On diametral approximative dimension and linear homogeneity of F-spaces. Bul Ac Pol Mat 9 no.9:677-683 '61.

1. Institute of Mathematics, Polish Academy of Sciences. Presented by S. Mazur.

PELCZYNSKI,A.; SZLENK,W. (Varsovie)

Natural injection of space (l) into space (l_p). Col math 10 no.2:313-323 '63.

ENGELKING, R.; PELCZYNSKI,A.

Remarks on dyadic spaces. Col math 11 no.1:55-63 '63.

1. Mathematical Institute, Polish Academy of Sciences, Warsaw,

PELCZYNSKI, A. (Warsaw); SUDAKOV, V. N. (Leningrad)

Remark, on non-complimented subspaces of the space m(s).
Colloquium mathem 9 no. 1:85-88 '62.

PELCZYNSKI, A.; SINGER, I.

On nonequivalent bases and conditional bases in Banach spaces. Studia math 25 no.1:5-25 '64.

1. Department of Mathematics of the Warsaw University (for Pelczynski). 2. Institute of Mathematics of the Rumanian Academy of Sciences (for Singer). Submitted January 16, 1964.

PELCZYNSKI, A. (Warsaw)

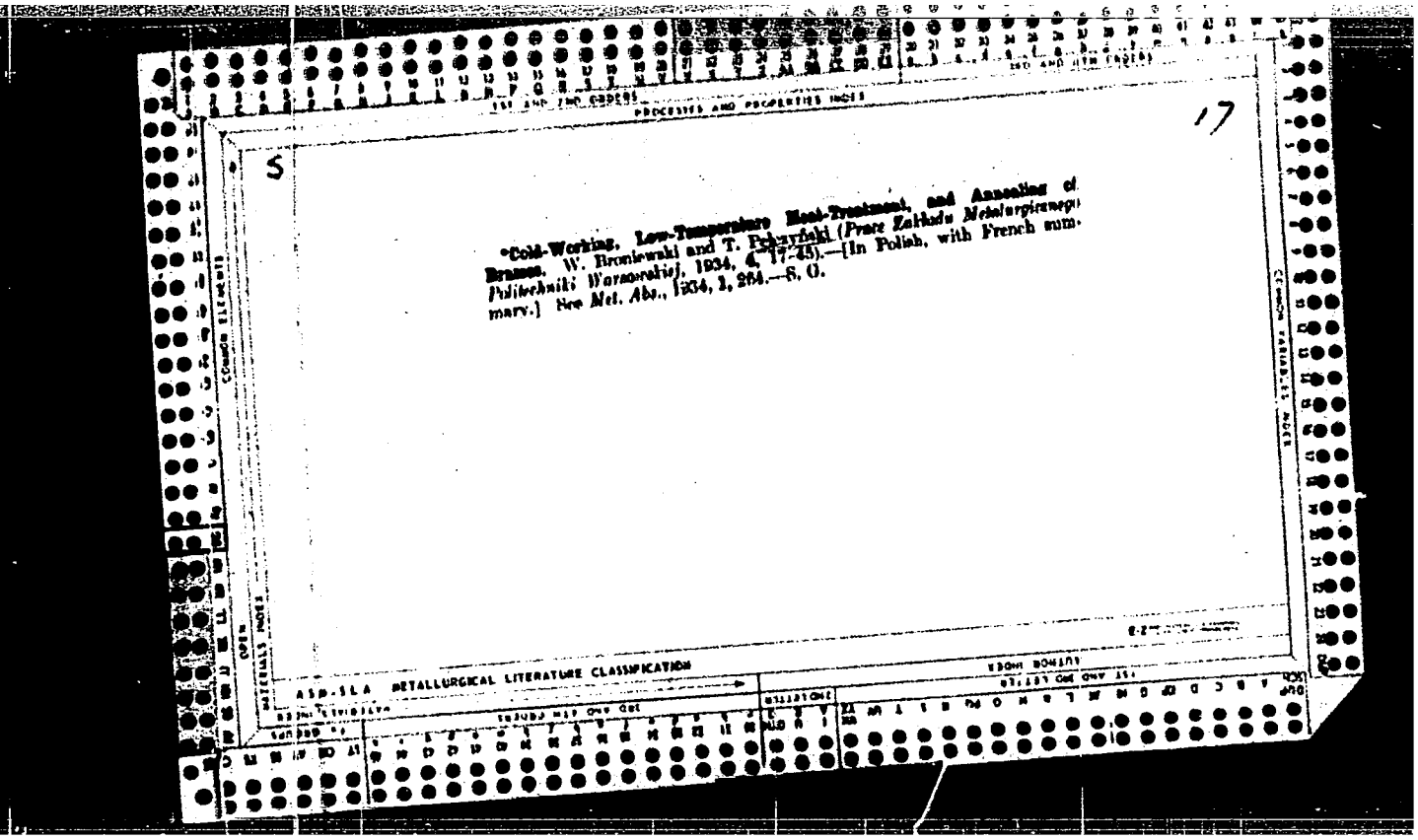
Supplement to my paper "On simultaneous extension of continuous functions." Studia math 25 no.1:157-161 '64.

Submitted May 27, 1964.

PELCZYNSKI, T.

The Warsaw uprising. P. 3
HELLONA. (Instytut Historyczny im. Gen. Sikorskiego) London.
No. 3, July/Sept. 1955

SOURCE: HEAL LC Vol. 5, no. 7, July 1956



17

S

•Cold-Working, Low-Temperature Heat-Treatment, and Annealing of Brasses. W. Bronisewski and T. Pakuzyński (*Prace Zakładu Metalurgicznego Politechniki Warszawskiej*, 1934, 4, 17–45).—[In Polish, with French summary.] See *Met. Abs.*, 1934, 1, 264.—S. O.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

T. PELCZYNSKI

Some mechanical properties of poly(vinyl chloride). T. Pelczyński and W. Dębski (Wojskowa Akad. Techn., Warsaw). *Biul. Wojskowej Akad. Techn.* 6, No. 1, 3–21 (1957).—Rods from Polish poly(vinyl chloride), contg. polyvinyl resin 90 and a plasticizer (Palatinol AH) 10%, were exmd. for stretching, compressing, and torsional strengths.
A. Szafrański

PELCZYNSKI, Tadeusz

Influence of hydrostatic pressure upon the plastic properties of metals. Archiw hutn 7 no.1:3-13 '62.

PELCZYNSKI, A.

Banach spaces on which every unconditionally converging operator is weakly compact. Bul Ac Pol mat 10 no.12:641-648 '62.

1. Institute of Mathematics, Polish Academy of Sciences, Warsaw. Presented by S.Mazur.

PELCZYNSKI, A.; [illegible]EJNIAKI, B.; CZYZ, J.

Problems connected with the long-range development of the Danzig-Gdynia Port complex. p. 353

TECHNIKA I GOSPODARKA MORSKA. (Naczelna Organizacja Technicana, Instytut Morski i Morski Institut Rybacki) Gdansk, Poland. Vol. 8, no. 12, Dec. 1958

Monthly List of East European Accessions (EEAI)LC Vol. 8, no. , August, 1959

Uncl.

BESSAGA, C.; PELCZYNSKI, A.

Banach spaces nonisomorphic to their Cartesian squares. I. Bul Ac Pol mat 8 no.2:77-80 '60. (EEAI 9:12)

1. Institute of Mathematics, Polish Academy of Sciences. Presented by S.Mazur.
(Spaces, Generalized) (Topology)

PELCZYNSKI, A.

"On bases and unconditional convergence of series in Banach spaces"

p. 151 (Studia Mathematica, Papers issued by the Polish Academy of Sciences, Vol. 17, no. 2, 1958, Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1, Jan. 59.

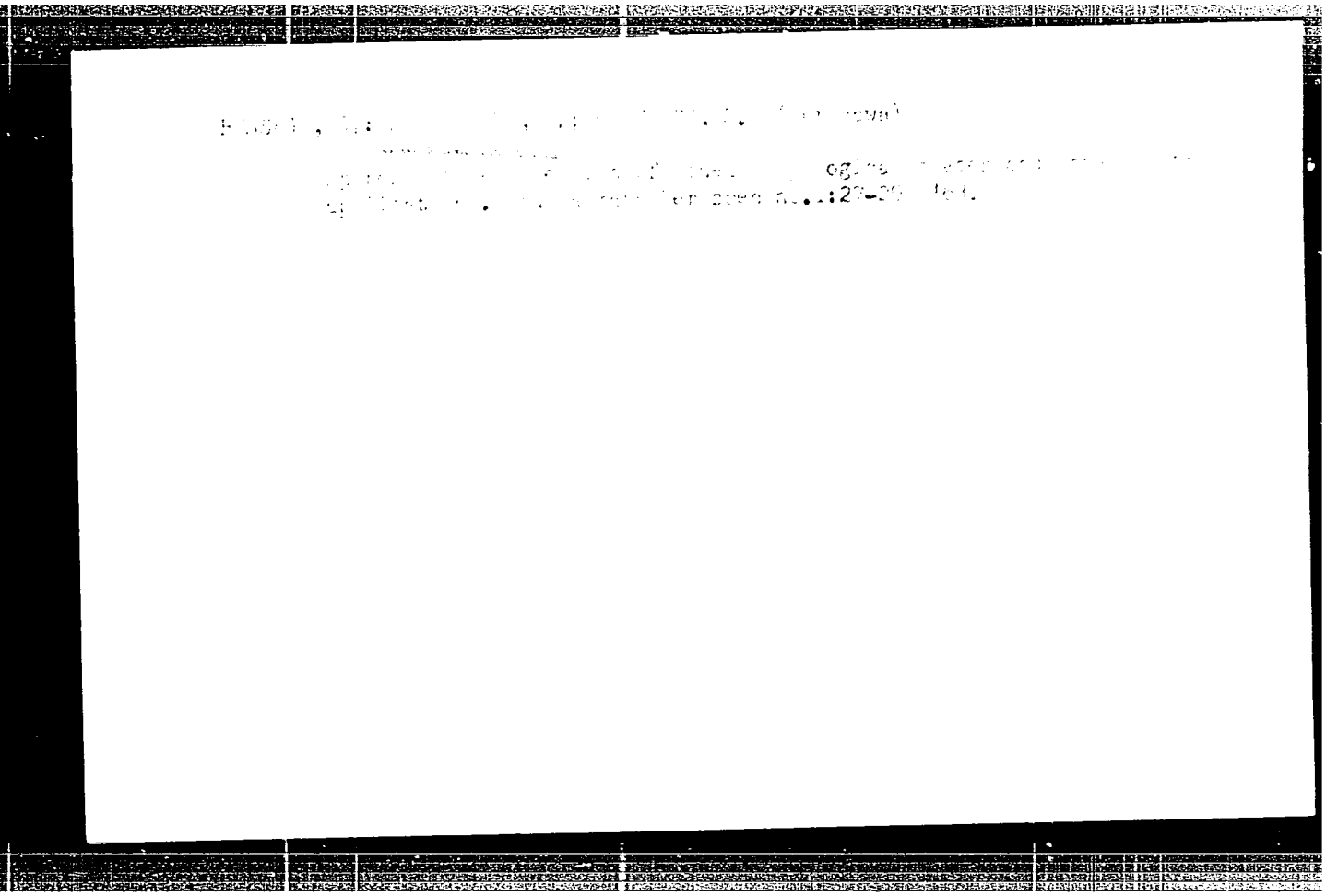
PELCZYNSKI, A. (Warszawa)

A note on the paper of I. Singer" Basic sequence and reflexivity of Banach spaces." Studia math 21 no.3:371-374 '62.

BESSAGA, C.; PELCZYNSKI, A.

Some remarks on homeomorphisms of F-spaces. Bul Ac Pol mat 10 no.5:265-270 '62.

1. Institute of Mathematics, Polish Academy of Sciences, Warsaw. Presented by S.Mazur.



PELCZYNSKI, A. (Warsaw)

On the impossibility of embedding of the space L in certain Banach spaces. Col math 8 no.2:199-203 '61.

1. Mathematical Institute of the Polish Academy of Sciences.

PELCZYNSKI, A.

"A generalization of results of R. C. James concerning absolute bases in Banach spaces"

p. 165 (Studia Mathematica, Papers issued by the Polish Academy of Sciences, Vol. 17, no. 2, 1958, Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1, Jan. 59.

PELCZYNSKI, T.

Soviet problems in Poland in the years 1939-1945.

p. 24 (Pellona) No. 2, Apr./June 1957, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

PELCZYNSKI, T.

Mohr's stress theory. p.74

PRZEGLAD SPAWALNICTWA. (Stowarzyszenie Inzynierow i Techników Mechanikow Polskich i Instytut Spawalnictwa) Warszawa, Poland. Vol.11, no.3, Mar. 1959

Monthly List of East European Accessions Index, (EEAI) LC, Vol.8, no.6, June 1959
Uncl.

PELCZYNSKI, T

Distr: 4E2b(v)

The tendency of steel to brittle cracking. Tadeusz Pelczyński. *Biul. Wojskowej Akad. Techn.* 8, No. 84, 13-28(1959)(English and Russian summaries).—Factors affecting the embrittlement of steel, e.g. stress distribution, temp., shape, and mech. properties, are discussed. Yield point (Q) and resistance to rupture (R_s) (taken as a load at rupture to min. cross-section area ratio) detd. in the usual tensile test at temp. t, are used to calc. the temp. of brittleness t_b, viz., $t_b = t - (Q - ZR_s)/(K_1 - ZK_2)$, where K_1 and K_2 are Q- and R_s with temp. variation av. coeffs., (e.g. for Armco iron within −196 to 20°: −0.26 and −0.063 kg./sq. mm./°C., resp.), and Z denotes deformability equal to Q/R_s at the brittleness temp.

A. Smolinski

PELCZYNSKI, TADEUSZ

3

POL

Płaszczyzny Poślizgów i Pękania Poślizgowego (Slide Planes and Slide-Cracking Planes). Tadeusz Pelczyński. *Arch. Budowy Maszyn* (Warsaw) No. 4, 1951, pp. 445–457. 12 refs. In Polish, with summaries in English and Russian. Experimental tests on the deformation and fracture of solids.

PEROZYNSKI, T.

A new method of determining low temperature impact properties of structural steel. p. 85.

PRZEGLAD SPAWALNICTWA. (Stowarzyszenie Inzynierow i Techników Mechaników Polskich i Instytut Spawalnictwa) Warszawa, Poland. Vol. 11, no. 4, Apr. 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 8, Aug. 1959.

Uncl.

V312

P/038/62/007/001/001/003
E193/E383

18.8200

AUTHOR: Pełczyński, Tadeusz

TITLE: Effect of hydrostatic pressure on plastic properties of metals

PERIODICAL: Archiwum hutnictwa, v. 7, no. 1, 1962, 3 - 13

TEXT: After a brief review of experimental evidence relating to the subject under consideration, the author quotes results of his earlier work (Ref. 5- Tensile tests on some metal specimens under high hydrostatic pressure. Prace Zakładu Obróbki Plastycznej PAN, 1959) concerned with the effect of hydrostatic pressure on elongation and reduction of area of mild steel, 60 x 40 brass, copper and aluminium. Typical results obtained for copper on tensile test pieces (2 mm in diameter, 10 mm gauge length) are reproduced in Fig. 9, where $c = \ln A_o/A_{SZ}$, $a_5 = \ln l/l_o$, $a_r = \ln A_o/A_r$ are plotted against the magnitude of hydrostatic pressure $p(kg/mm^2)$; here, A_o denotes the initial cross-section area of the test piece, A_{SZ} the cross-section

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area of the neck, A_r the cross-section area at the end of the uniform elongation period (i.e. at the moment at which necking begins), ℓ_o the initial gauge length and ℓ the gauge length after fracture. It is evident that plasticity of all the materials tested increased with increasing magnitude of hydrostatic pressure which, in addition, affected the mode of fracture of the test pieces. The broken ends of the test pieces extended at atmospheric pressure had the shape of a truncated cone with a corresponding crater formed on the other half of the test piece. As the pressure increased, the diameter of the smaller base of the cone decreased and at a sufficiently high pressure the broken end of the test piece became conical. The object of the present work was to postulate an explanation of both these effects. To this end, the author considers the variation of stresses in an extended test piece, using for this purpose a diagram of limiting stresses plotted in

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σ_m/σ_H coordinates, where σ_m and σ_H denote, respectively, linear and qudratic constants of the state of stress. This diagram is reproduced in Fig. 13, where the yield point of the material is represented by a horizontal line $\sigma_H = Q$, the rupture strength being represented by the straight line RC plotted from the equation for brittle fracture:

$$(1 - 2\mu)\sigma_m + \frac{2}{3}(1 + \mu)\sigma_H \cos\varphi = R_o$$

where R_o is the brittle-fracture strength of the material and cos φ represents an index of the state of stress (for tension cos φ = 1). The straight line marked 'Ścięcie" represents the state of stress during the shear-failure stage (owing to lack of experimental data this line is hypothetical). In the absence of hydrostatic pressure (p = 0), the

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variation of stress in the elastic region is represented by OA , the yield point being reached at A . The variation of stress during the uniform-elongation stage is represented by AB . At B necking begins and, at this moment, triaxial stresses are set up in the interior of the test piece; the material near the specimen surface is still under uniaxial tension, which varies along BDE , curve BC representing the state of stress at the specimen axis. The state of stress for any given point between the axis and the surface of the specimen in the neck region will be represented by a curve located between BC and BE . The state of stress across the specimen cross-section at any stage of the plastic flow will be represented by a horizontal line KL , which moves upwards as the neck becomes narrower. It will be seen that for $p = 0$ point C , corresponding to brittle fracture in the axial zone of the test piece, is reached first. In the next stage of the process, stresses in the outer zone of the test piece increase, as a result of which the central crack (normal to the specimen axis) is propagated as a shear failure at about 45° to the

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specimen axis. The state of stress in a specimen subjected to hydrostatic pressure p_1 is represented by point M_1 with coordinates $\sigma_m = -p$ and $\sigma_H = 0$. On applying tensile stress, the state of stress varies along $M_1B_1C_1$ and $M_1B_1E_1$ (E_1 is not marked on the diagram). It will be seen that when the magnitude of the hydrostatic pressure reaches the value of p_2, no triaxial stresses are set up in the specimen which fractures by shear alone. Thus, it can be concluded that the increase in the uniform elongation of a test piece extended under hydrostatic pressure is due to increased resistance to plastic flow and increased degree of strain-hardening of the material. The increase in reduction of area is due to the increase in the shear and brittle-fracture strength; and the change of the mode of fracture is caused by absence of triaxial stresses in the axial zone of the test piece, which means that no brittle fracture takes place. There are 13 figures.

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L 16756-63 EPR/EWP(j)/BDS/EPF(c) AFFTC/ASD Ps-4/Pz-4/Pr-4 RM/WW

S/124/63/000/004/052/064

AUTHOR: Pelczynski, Tadeusz

TITLE: Determining resistance to break-off in plastic materials

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1963, 37, abstract 4V291 (Obrobka plast., v. 2, no. 3, 1961, 489-502)

TEXT: A study is made of the conditions necessary for determining the resistance to break-off in plastic materials; a simple means for ascertaining the quantity in question is indicated. Determination of this resistance is based on the stability criterion of Saint-Venan, and is arrived at experimentally in these experiments by simple stretching of the sample. Iu. P. Listrova.

[Abstracter's note: Complete translation.]

Card 1/1

GOSZTOWTT, Leon, doc. mgr inz.; PELCZYNSKI, Tadeusz jr., mgr. inz.

Moving ring testing of automatically tightening hydraulic installations. Przegl mech 22 no.10:296-298 25 My '63.

1. Katedra Przerobki Plastycznej, Politechnika Warszawa (for Gosztowtt).
2. Starszy technolog Oddzialu Produkcji Tasm i Folii, Walcownia Metali "Warszawa," Warszawa.

PELCZYNSKI, Tadeusz, prof.,dr. (Warszawa)

Evaluation of welded joints in regard of their brittle fracture tendency. Przegl spaw 14 no.1:1-3 '62.

PELCZYNSKI, Tadeusz, prof. dr. inż.

Trends of scientific research connected with planned development of the technology of machine construction. Przeg. mech. 24 no.1: 1-4 10 Ja '65.

1. Head, Department of Basic Problems of Plastic Working of the Technical University, Warsaw.

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Experimental study of trajectories and velocities in mechanisms. p.868

METALURGIA SI CONSTRUCIA DE MASINI. (Ministerul Industriei Metelurgice si Constructiilor de Masins si Asociatia Stiintifica a Inginerilor si Technicienilor din Rominia) Bucuresti, Rumania
Vol.11, no.10 Oct. 1959

Monthly list of East European Accessions (EEAI) LC, Vol.9, no.2. Feb. 1960

Uncl.

R/008/60/000/003/003/007
A125/A026

AUTHOURS: Pelecudi, Chr., and Calcan, V. I.

TITLE: Contributions to the Synthesis of the Mechanisms of Cyclic Curves

PERIODICAL: Studii şi Cercetări de Mecanică Aplicată, 1960, No. 3, pp. 627-650

TEXT: Subject article deals with an important family of cyclic curves, which can easily be obtained by mechanical means and which have some important properties regarding their use in modern engineering. Cycloids are obtained by rolling a circle externally or internally around another circle. The corresponding plane motion is achieved by rotating two bars OO_1 and O_1O_2 (Fig. 1), jointed at the basis in O and between themselves in O_1. Both bars have absolutely constant and different angular speeds. By connecting new jointed bars to this system and making them rotate with absolute different angular speeds, higher planetary motions are obtained. The practical use of such a mechanism with jointed bars and gears is awkward. The utilization of some separate revolving motions in different points of the plane and the combination with a pantograph eliminates the greatest part of the difficulties and enables the complete drawing of the cyclic curves. Reference is made to the mechanism presented by D. Maroş and

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R/008/60/000/003/003/007
A125/A026

Contributions to the Synthesis of the Mechanisms of Cyclic Curves

A. Csulak for the combination of two rotations (Ref. 2). The use of a second pantograph could multiply the possibilities of the mechanism. An interesting case is given by projecting one of the representative vectors onto the direction of the other vector. The authors then present several important properties of the higher cyclic curves. A summary examination of the given curve with regard to an intersection with a straight line, to the maximum radial numbers, etc., will give fairly exact indications on the cyclic curves. Convenient approximations can be obtained by using the methods of Fourier, Gaus, Taylor and Chebyshev. The authors examine then the synthesis of mechanisms for lower cyclic curves, obtained by using a polygon with two jointed bars: a) Connection of two rotations; b) Connection of a rotation with a translation; and c) The case of a vector rotating with a harmonically variable amplitude. The calculations mentioned enable the synthesis of mechanisms for the achievement of curves. In a future work the authors will study the properties of higher cyclic curves. There are 16 figures and 10 references: 4 Soviet, 2 Rumanian, 2 German and 2 Austrian.

SUBMITTED: February 13, 1960

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R/008/60/000/005/004/014
A231/A126

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AUTHORS: Pelecudi, Chr., and Calcan, V. I.

TITLE: On the synthesis of the mechanisms of higher cyclic curves

PERIODICAL: Studii şi Cercetări de Mecanică Aplicată, no. 5, 1960, 1133 - 1147

TEXT: In a previous work the authors have dealt with the synthesis of lower cyclic curves, obtained by the composition of two rotations or one rotation and a translation. In the present article they extend the results to the composition of three motions, using for the closed plane curves the approximation methods. In case of diagrams of lesser accuracy, the approximate synthesis can be accomplished by the composition of three motions for a characteristical medium curve, above which the influence of the fourth motion can be applied. This motion is expressed by the revolution of a bar of a smaller length but with a greater angular speed. After having established the basic curve, the lengths or angular speeds of the component vectors can be varied in small steps, in order to obtain the desired deformation of the curve. For algebraic cycles of the third order with a revolv-

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ing symmetry axis, at which the vectors are co-linear in the initial position, $R_1>R_2>R_3$, and ω_1; ω_2; ω_3; are the lengths and angular speeds of the N_1; N_2; N_3 respective elements of the mechanism. The complete revolution number is

$$N_p = \omega_p \frac{D}{\Delta} , \qquad (3),$$

where D is the common denominator and Δ the common factor of the angular speeds. The number of the M symmetry axes is the greatest common factor of the differences $N_1 - N_3$ and $N_2 - N_3$. $N_1 = MK_1 + N_3$; $N_2 = MK_2 + N_3$, (4). The angle in the center of two symmetry axes is $2\pi/M$. On these axes,

$$|z| = \sum_1^3 \pm R_i ,$$

according to the direction of the co-linear vector from the initial position. An approximation method based on a development in the Fourier series with complex terms of the closed plane curves is used for higher cycles. Thus, the trigonometrical polygons, the coefficients of which correspond to those of the Fourier series, supply the smallest average quadratic deviations. The development $z = \sum_{-\infty}^{+\infty} C_m e^{imt}$, (5)

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On the synthesis of the mechanisms of...

supplies at a given moment the position of the point which generates the curve and gives the possibility of a quick determination of the speeds and accelerations

$$\dot{z} = i\sum_{-\infty}^{+\infty} m\, C_m e^{imt}, \qquad (6);$$

$$\ddot{z} = -\sum_{-\infty}^{+\infty} m^2 C_m e^{imt}, \qquad (7).$$

For a certain plane curve, the determination of the Fourier coefficients is given. The integrals Im_p can be computed on the basis of the cases shown in Figures 4 and 5. For the calculation of the Σ_m sum, one can use the graphical method by constructing a polygon of L_k sides and the respective angles $\alpha_k - m(k-1)\frac{2\pi}{n}$, connected directly to the initial polygon (Fig. 6). The establishment of the Σ_m sum is reduced to polygons with $\frac{n}{\gamma}$ rotation symmetries, i.e. with $\frac{n}{\gamma}$ sides included between two symmetry axes. The angle α'_k can be obtained from $\alpha'_k = 180 + 2\gamma - \alpha_k$. At a new symmetry which corresponds to a 2γ rotation angle, one obtains: $\alpha''_k = 2\gamma - \alpha_k$. The L_k side at the first symmetry is $\frac{2n}{\gamma} - k + 1$ and at the second symmetry

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On the synthesis of the mechanisms of...

$\frac{2n}{c} + k$. Thus, two geometrical progressions are resulting which represent the first two groups, obtaining the others by rotating the angles 2γ, 4γ, etc., the sum of which is $\frac{\delta}{2}$ if $m = 1 + \lambda\frac{\delta}{2}$. Graphically, the L_k vectors of $\alpha_k - (2k - 1)\frac{m\pi}{n}$ angle are first constructed and the resulting vector is then projected onto the vertical axis. Considering the time interval to be variable in function of the length of the respective side, the authors establish equations for the constant speed and equations for the constant acceleration. In regular polygons, both cases (a and b) supply:

$$C_{m_p} = \frac{ne^{i\alpha}\, 1.I_{m_n}}{2\pi(mi)^p}, \qquad (33),$$

since $\alpha_k = \alpha + (k - 1)\frac{2\pi}{n}$ and $\sum_m = ne^{i\omega}$ for $m = 1 + \lambda n$, (34).

Replacing the values of I_{m_p}, the authors obtain, for plane curves, formula

$$C_m = \frac{1}{2\pi mi}\int_0^{2\pi} v(t)\, e^{i[\alpha(t) - mt]}\, dt, \qquad (41)$$

At the returning points of the curve it has to be considered that the speed and eventually the next derivatives are annulled. Since the position vector of a polygon is given by $z = z_{k-1} + s_k(t)e^{i\alpha k}$, the hodographs of the vectors

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R/008/61/000/005/002/005
D289/D305

AUTHORS: Pelecudi, Chr., Bogdan, R. C., and Calmaciuc, L.

TITLE: On the bending stresses and deformations of caps in crank-mechanisms

PERIODICAL: Studii şi cercetări de mecanică aplicată, no. 5, 1961, 1047-1056

TEXT: The article deals with the stresses and deformations, to which piston rod caps are subjected. To determine the forces appearing in the caps of simple crank-mechanisms, the authors establish the following hypotheses. (a) The assembly axis of the cap to the rod is perpendicular to the axis of the rod. (b) The mass of the rod decomposed into two masses concentrated at the large end and small end of the rod is considered to be a simplifying factor. (c) V and H are the forces due to the crank pin, supplying the resultant P which acts on the cap. (d) $F(\theta)$ is the force due to the gass pressure exerted on the piston surface. (e) N and μN are the perpendicular and the tangential reactions between the cylinder

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On the bending stresses ...

and the piston. (f) F_A and F_B are the inertia forces of the rod - piston system, considering the simplifying hypothesis of the distribution of the rod mass to the two points A and B. Starting with the expressions of H and V deduced from the force equilibrium (Fig. 1):

$$H = - F_B \sin (\theta + \delta) \qquad (1)$$

$$V = F_B \cos (\theta + \delta) - \frac{(F + F_A)\cos\varphi}{\cos (\delta - \varphi)} \qquad (2)$$

in which φ = arctg μ is the friction angle, positive for θ between 0 and 180^0 and negative for θ between 180^0 and 360^0, the authors deduce, after having established the expressions of the inertia forces F_B and F_A:

$$F_B = m_B \, r\omega^2 \qquad (5)$$

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On the bending stresses ...

and

$$F_A = m_A \ddot{x}_A = - m_A r \omega^2 \left[\frac{\cos(\theta + \delta)}{\cos \delta} + \lambda \frac{\cos^2 \theta}{\cos^3 \delta} \right] \qquad (6)$$

the relations

$$H = - m_B r \omega^2 \sin \theta \qquad (9)$$

and

$$V = (m_A + m_B)\, r \omega^2 \cos \theta \qquad (10)$$

which supply the approx. shape of the variation of the H and V forces, based on the boundary case $\lambda = 0$ and $\delta = 0$. H describes a sine line and V a cosine line. θ approx varies between $-\pi/2$ and $+\pi/2$. The angle α under which the P(H and V) force stresses the

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cap, varies approx. linearly with the time:

$$tg\alpha = \frac{V}{H} \simeq -\left(1 + \frac{m_B}{m_A}\right) ctg\theta, \quad \alpha \simeq \pi/2 + \theta \qquad (1^{\cdot})$$

To establish the forces which stress the cap of the master and articulated rods of a V-engine (Fig. 3), the authors deduce for H:

$$H = -M_H r\omega^2 \sin\theta - m_A r\omega^2 \lambda \sin 2\theta \sin\gamma \sin\frac{\gamma}{2} +$$

$$+ \left[F_2(\theta_2) - F_1(\theta_1)\right] \sin\frac{\gamma}{2} \qquad (25)$$

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On the bending stresses ...

in which M_H is given by:

$$M_H = 2\left(m_B + m_A \sin^2 \frac{\gamma}{2}\right)$$

and for V:

$$V = M_V r\omega^2 \cos\theta + 2m_A r\omega^2 \lambda \left[\cos^2\theta \cos^2 \frac{\gamma}{2} + \sin^2\theta \sin^2 \frac{\gamma}{2}\right] \cos \frac{\zeta}{2} \cdot$$

$$-\left[F_1(\theta_1) + F_2(\theta_2)\right] \cos \frac{\gamma}{2}$$

in which M_V is given by:

$$M_V = 2\left(m_B + m_A \cos^2 \frac{\gamma}{2}\right) \qquad (26)$$

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On the bending stresses ...

To determine the deformations of the rod cap, the authors take into consideration the resultant P of the forces H and V, the reacting force of the screws F, and the supporting forces H_1 and H_2 between the rod and cap accomplished by a wedge, bolts, or friction, as shown in Fig. 5. The bending moments on the (1 - P) and (P - 2) sections are given by:

$$M_1 = (H_1 \sin\psi + F \cos\psi)r - F(e + r) \qquad (29)$$

and

$$M_2 = (H_2 \sin\psi - F \cos\psi)r - F(e + r) \qquad (30)$$

and, according to Castigliano's theorem, the non-impeded displacement of the support No. 1 in case of a constant bending rigidity is given by:

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D289/D305

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$$u_1 = \frac{r^3}{2EI}\left[\pi H_2 - H\left(\alpha + \operatorname{tg}\varphi\left(1 + \frac{2e}{r}\right)\right)\right] \text{ and } u_2 = 0 \qquad (32)$$

The authors finally establish the deformation and force diagrams of the separation plane. According to the type of action of forces and deformations, they distinguish the following cases. (a) Lateral displacement impeded by wedges in a single direction. (b) The displacement of both supports is impeded in every moment. (c) The displacement of the no. 2 support is impeded and the no. 1 support supplies an elastic reaction. (d) The no. 1 support supplies an elastic reaction followed by a constant force, due to possible friction. In accordance with these situations, various forces are produced in the assembly screws, depending on whether the screws react to the stresses produced by the cap by elastic bending, shearing, etc. These stresses may be avoided or reduced by using corresponding wedges, bushings, or bolts with close tolerances.

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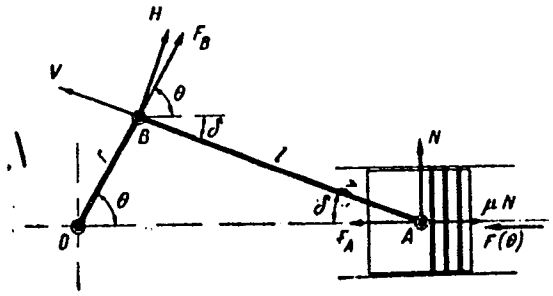
There are 7 figures and 7 Soviet-bloc references.

SUBMITTED: June 28, 1961



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On the bending stresses ...

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D289/D305

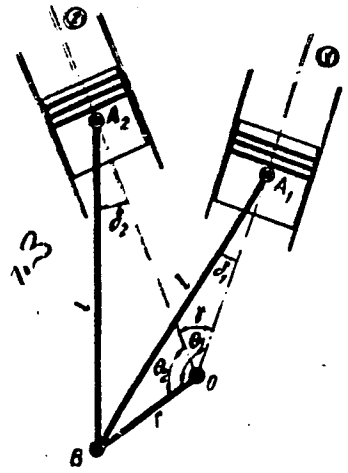

Fig. 3

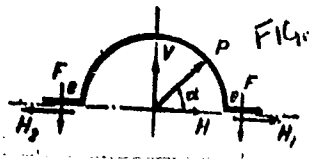

Fig. 5

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D272/D304

AUTHOR: Pelecudi, Chr.

TITLE: Representation of functions with the aid of arcs of rotation cams and translation tappets

PERIODICAL: Studii si cercetări de mecanică aplicată, no. 6, 1961, 1271 - 1291

TEXT: In a preceding paper (R.C. Bogdan, Chr. Pelecudi, L. Calamaciuc and G. Antonescu, Revue de Mécanique Appliquée, no. 1, 1960) an ellipsograph mechanism was developed for the representation of an electrical function, proportional to the values of the functions sin θ or cos θ, where ϵ is the rotation angle of an oscillating slide, permitting the exploration of the domain 10^{o} - 80^{o} only. An improvement has now been obtained by using a profile cam linked directly with the oscillating slide, the electrical circuit consisting of resistance wires stretched on the cam contour and fed with the voltage connections A and B obtaining the variations of the functions sin θ or cos θ; in this case the cam form ρ(θ) is chosen

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